

REMARKS

By the foregoing amendments, the claims have been amended to define, with greater particularity, the novel features of the invention, and further to overcome the rejection of claims 1 and 9 under Section 112.

The present invention is a bulk conveyor for elevation, preferably small elevation, of bulk material using a single and reduced radius of curvature and having its edges supported on a single roller, preferably having a radius equal to the radius of curvature of the belt.

In a crushing unit, the curved belt transfers the material to another belt conveyor located at a higher level and with a displacement in an opposite direction. The single rollers of the two belts are mounted on a common shaft, which is also used to support the return drum of the other belt conveyor. The support roller of the first belt and the return drum of the second belt are mounted on a common shaft. Also, in the present invention it is possible to choose the speed of the belt conveyor, which receives the material being elevated by the first curved belt.

According to the present invention, in the belt conveyor the edges in a final part, supported in the single pair of supporting rollers, force the formation of an ascending closed curve resulting in a centrifugal force which retains the material on the surface of the belt and allows the transfer of such material to another belt conveyor positioned in the center of the curvature.

In contrast to the prior art, on the belt conveyor the material is moved upwardly by only one belt conveyor, and centrifugal force is used to retain the material on the belt conveyor, allowing the upward movement of the material. Also, in the crusher unit, there is not contact between the two belt conveyors. Also, there is no simultaneous contact of the material with the

two belt conveyors: a first belt conveyor is used to transport the material upwardly and to transfer the material to the second belt conveyor. Further, the belt conveyor has a curved zone with its two edges supported by a single pair of rollers so that other devices are not needed.

In the prior Office Action, claims 1, 3-6, and 8 were rejected as anticipated by Dodge U.S. patent No. 672,358. Claims 1-2, 5, 7, and 9-11 were rejected as anticipated by Winchip U.S. patent No. 5,996,769. Claims 1,3-6, and 8-14 were rejected as obvious over Morrissey U.S. patent No. 2,210,093 in view of Dodge. And, claims 12-15 and 17-18 were rejected as obvious over Winchip in view of Plaut U.S. patent No. 4,585,118.

Dodge discloses a belt conveyor having an end portion in the form of an ascending curve with different radii of curvature to transport material on the belt, creating centrifugal force. The belt conveyor comprises lateral drive chains (a) and wheels (Fig. 1) or individual drums (C) (Fig. 2), which support the lateral end of the belt in the ascending curve.

The apparatus disclosed in Dodge presents disadvantages compared to the claimed belt conveyor. The use of such conveyor belt mechanism, to upwardly transport the material, requires the use of a large radius of curvature and, as a consequence, the required centrifugal force is only obtained by using a speed higher than desirable for a belt conveyor. Also, a belt with a large radius of curvature cannot present a transversal rigidity sufficient to avoid collapse. Before collapsing, the belt conveyor would deform in shape, which would push the material to the edges, resulting in the rotating of the rollers on the material, and damaging the contact zone of the belt. Also, in the construction disclosed in Dodge, the loss of material is inevitable.

Winchip discloses a sandwich conveyor, which transports material pressed between two belt conveyors. It does not employ centrifugal force as a means to retain and transport the

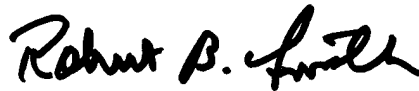
material. Sandwich conveyors suffer from the disadvantage of constant damage to the belt caused by the compressed material, particularly in the case where large pieces are transported.

Morrissey discloses a rotating device used to move material upwardly for transfer to a belt conveyor rotating in an opposite direction.

Finally, Plaut discloses another sandwich-type conveyor. It differs from Winchip in the way in which the belts are supported in the curved extensions.

In light of the forgoing amendments, favorable consideration and allowance of the application are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert B. Smith", with a horizontal line underneath.

Robert B. Smith
PTO Registration No. 28,538
Attorney for Patent Owner
(212) 885-9237

Abelman, Frayne & Schwab
666 Third Avenue
New York, NY 10017
rbsmith@lawabel.com